

自行走履带式曲臂高空作业平台

产品使用手册 • User Manual

Tracked Articulated Boom Lift



产品型号 **Model:** QB-5.5 / LD

最大升降高度 **Max. lift height:** 5,500 mm

额定载重 **Rated capacity:** 200 kg

文件编号 **Doc. No.:** UM-QB-5.5-016

版本 **Version:** V1.0

⚠ 安全提示 / Safety Notice

操作本设备前，请务必通读本手册全部内容，并严格遵守安全警告与操作规程。未按本手册操作可能导致严重人身伤害。

Read this manual in full before operating the machine and follow every safety warning and operating procedure. Failure to do so may result in serious personal injury.

提示 / Note

本手册请随设备妥善保管，便于随时查阅。设备上的安全标识如有破损请及时向销售商索取更换。

Keep this manual with the machine for future reference. If any safety label on the machine is damaged, ask your dealer for a replacement.

1 产品概述 / Product Overview

感谢您选购本款自行走履带式曲臂高空作业平台。本设备采用剪叉式升降机构，结构稳固、升降平稳；整机由48V 203Ah 锂电池（8 块）+ 2000W 交流电机驱动，加厚橡胶履带，双电机独立驱动，支持臂 360° 回转，作业半径大，广泛适用于果园采摘、树枝修剪、墙体喷涂、线路抢修等多场景。

Thank you for choosing this Tracked Articulated Boom Lift. The machine uses a scissor lifting mechanism for a stable, level lift, driven by 48 V 203 Ah lithium battery (8 units) with 2000 W AC motor with reinforced rubber crawler tracks, dual independent drive motors. 360 degree turret rotation for a wide working radius. It is widely used for orchard picking, tree pruning, wall spraying and emergency line repair.

1.1 产品特点 / Key Features

- 两节伸缩大臂 + 支撑臂 360° 回转，作业半径和高度兼顾
Two-stage telescopic booms with 360 degree turret rotation
- 最大工作高度 5.5 米，越障能力优于剪叉结构
5.5 m working height with better reach over obstacles than a scissor lift
- 工作驾驶仓与无线遥控双点位操作
Work basket controls plus a wireless remote
- 履带底盘，果园行间、工地土路通行自如
Crawler chassis travels orchard rows and site tracks
- 液压支腿式支撑臂，作业时支撑稳固
Hydraulic support arms stabilise the machine while working

1.2 主要技术参数 / Main Specifications

项目 Item	参数 Specification
设备尺寸 (长×宽×高) Machine size (L x W x H)	2,620 × 1,440 × 1,550 mm
最大工作高度 Maximum working height	5,500 mm
大臂升起高度 Boom lift height	3,600 mm
平台离地高度 (升起后) Platform height when raised	1,200 mm
额定载重 Rated capacity	200 kg
整机重量 Machine weight	约 1,120 kg
电机功率 Motor power	2,000 W 交流电机
电池容量 Battery capacity	48V 203Ah (8 块电池)
支撑臂回转 Turret rotation	360°
行走速度 Travel speed	无线遥控无级调速

项目 Item	参数 Specification
行驶方式 Drive	加厚橡胶履带，两节伸缩大臂

2 安全警告与注意事项 / Safety Warnings

危险 / DANGER

不遵守本手册安全规则，可能导致人员伤亡或设备损坏。操作人员须经培训合格后方可上岗。
Failure to follow these safety rules may cause death, injury or equipment damage. Operators must be trained and competent before using the machine.

2.1 使用条件限制 / Operating Limits

限制项目 Item	要求 Requirement
地面承载 Ground	坚实、平整、无松软或塌陷；坡度不得超过 3° Firm, level ground with no soft spots; slope must not exceed 3 degrees
风力条件 Wind	室外作业时风速不得超过 12.5 m/s (6 级以下) Outdoor work only when wind speed is below 12.5 m/s (Beaufort 6)
天气条件 Weather	雷雨、冰雪等恶劣天气禁止室外作业 No outdoor work in thunderstorms, snow or ice
环境限制 Environment	禁止在易燃易爆、腐蚀性气体环境中使用 Do not use in explosive or corrosive atmospheres
上方空间 Overhead	升起前确认上方无高压线、管道、吊灯等障碍物 Check for power lines, pipes and light fittings overhead before lifting
人员要求 Personnel	酒后、患病、服用嗜睡药物者禁止操作；操作人员须经培训合格后方可上岗 No operation after alcohol, illness or sedative medication; operators must be trained

2.2 操作前检查（日检）清单 / Daily Pre-Start Checklist

每次使用前，操作人员必须逐项完成下列检查，确认无误后方可作业：

Before every shift the operator must complete each of the following checks:

序号 No.	检查项目 Check item	判定标准 Pass criteria
1	液压油油位（观察油窗） Hydraulic oil level (sight glass)	位于 MIN~MAX 之间 Between MIN and MAX
2	电池电量指示 Battery charge indicator	不低于 30% Not below 30%
3	轮胎 / 履带外观 Wheel or track condition	无破损、无脱层，气压正常 No damage or delamination, correct pressure
4	液压管路及接头 Hydraulic hoses and fittings	无渗漏、无龟裂 No leaks or cracking
5	平台护栏与平台门联锁 Guardrail and gate interlock	无变形、门锁可靠 No distortion, latch secure

序号 No.	检查项目 Check item	判定标准 Pass criteria
6	剪叉臂 / 大臂及铰接销轴 Scissor arms or boom and pivot pins	无裂纹、无松动 No cracks or looseness
7	控制面板各按钮与摇杆 Console buttons and joysticks	动作灵活、复位正常 Free movement, correct return
8	急停按钮 Emergency stop	按下即停机、旋出复位 Stops when pressed, resets when released
9	支腿及调平装置（如配） Outriggers and levelling (if fitted)	伸缩灵活、锁紧可靠、自动配平正常 Move freely, lock securely, self-levelling works
10	升降、行走功能试运行 Lift and travel function test	动作平稳、无异响 Smooth operation, no abnormal noise

2.3 作业期间严禁事项 / Prohibited During Operation

1. 严禁在平台升起状态下移动设备或收起支腿；
Never move the machine or retract the outriggers while the platform is raised.

3. 严禁攀爬护栏、在护栏上架设梯子或以护栏悬挂重物；
Never climb the guardrail, lean a ladder against it or hang loads from it.

5. 严禁在平台下方站人或堆放物料；
Never stand or stack material beneath the platform.

7. 严禁擅自拆除、短接或改装任何安全保护装置；
Never remove, bypass or modify any safety device.

9. 严禁两台及以上设备叠放或搭接作业；
Never stack two or more machines or bridge between them.
2. 严禁超载、偏载作业，平台载荷须均匀放置；
Never overload or offset the load; distribute it evenly on the deck.

4. 严禁身体探出平台护栏外作业；
Never lean out beyond the guardrail while working.

6. 严禁将本设备当作起重机、牵引车或叉车使用；
Never use the machine as a crane, tow tractor or forklift.

8. 严禁在平台升起状态下进行充电或检修；
Never charge or service the machine with the platform raised.

10. 严禁在作业中接打电话、嬉闹或疲劳操作。
Never take calls, play around or operate while fatigued.

3 设备结构与尺寸说明 / Structure and Dimensions

3.1 主要组成部分 / Main Components

系统 System	主要部件 Main parts	功能 Function
升降系统 Lifting system	剪叉臂组（或桅杆/大臂）、销轴、加粗油缸 Scissor arms (or mast/boom), pivot pins, cylinders	实现平台平稳升降 Raises and lowers the platform
行走系统 Travel system	加厚橡胶履带，双电机独立驱动 Reinforced rubber crawler tracks, dual independent drive motors	驱动设备行走与转向 Drives and steers the machine
液压系统 Hydraulic system	液压泵站、油箱、阀组、油管 Pump station, reservoir, valve block, hoses	提供升降与支腿动力 Provides lifting and outrigger power
电气系统 Electrical system	控制器、电池、面板、线束 Controller, battery, console, wiring harness	整机控制与供电 Controls the machine and supplies power
平台总成 Platform assembly	台面、护栏、平台门（或工作驾驶仓） Deck, guardrail, gate (or work basket)	承载人员与工具 Carries the operator and tools

系统 System	主要部件 Main parts	功能 Function
操控系统 Control system	无线遥控操作台 + 工作驾驶仓双点位 Wireless remote console plus work basket controls	无线遥控整机动作 Remote control of all machine functions

3.2 整机部件结构图 / 整机尺寸标注图

Component Layout · Overall Dimensions

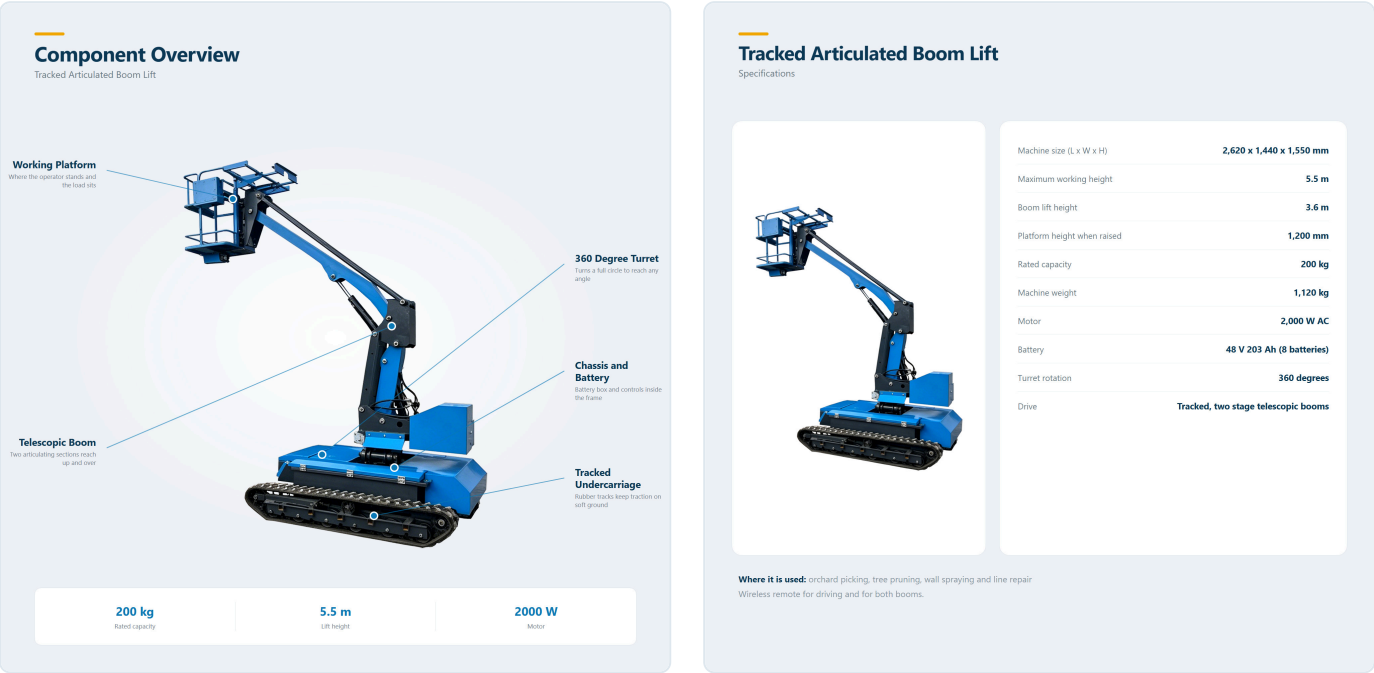


图 3-1 主要部件位置示意

Fig. 3-1 Key component positions

图 3-2 整机尺寸与规格标注

Fig. 3-2 Overall dimensions

3.3 液压升降原理简介 / How the Lift Works

行走电机驱动液压泵站建立压力油，经电磁换向阀控制进入升降油缸。上升时压力油推动活塞，经剪叉臂（或伸缩大臂）增力放大后平稳顶升平台；下降时靠平台自重使油缸回油，由节流阀控制回油流量，保证下降速度平稳。油路中设有液压锁（平衡阀），即使油管意外破裂，平台也不会急速坠落。

The travel motor drives the hydraulic pump station to build pressure, which is directed by a solenoid directional valve into the lift cylinder. On the way up the pressurised oil drives the piston and the scissor arms (or telescopic boom) multiply the force to raise the platform smoothly; on the way down the platform's own weight returns the oil, with a throttle valve metering the flow so the descent stays controlled. A hydraulic lock (balance valve) in the circuit prevents the platform from falling if a hose should burst.

4 操作控制系统 / Controls

4.1 控制元件说明 / Control Elements

控制元件 Control	功能 Function	操作方式 Operation
遥控器中央开关 Remote centre switch	整机开关机 Power the machine on and off	按压开机 Press to power up
左摇杆（前后） Left joystick (fore/aft)	前进 / 后退 Travel forward and reverse	前推前进、后推后退 Push forward / pull back

控制元件 Control	功能 Function	操作方式 Operation
右摇杆 (左右) Right joystick (left/right)	左转 / 右转 / 原地旋转 Steer left and right, pivot on the spot	左推左转、右推右转, 持续推动原地 360° 旋转 Push left or right; hold to pivot 360 degrees
左上角推杆 Top-left joystick	平台上行 / 下行 / 停止 Raise, lower, stop	上推上行、下推下行、中间停止 Up to raise, down to lower, centre to stop
急停按钮 Emergency stop	紧急切断整机动力 Cut all power in an emergency	按下锁定、旋出复位 Press to lock, turn out to reset
左摇杆上方按钮 Button above the left joystick	第二节曲臂上行 / 下行 Raise or lower the second boom section	前侧按钮上行、后侧按钮下行 Front button raises, rear button lowers

Controls and Safety

Everything within reach of one operator



Wireless Remote Control

@Drive, steer and work both booms from the remote. One person can run the whole machine from the basket.@

Proportional Joystick

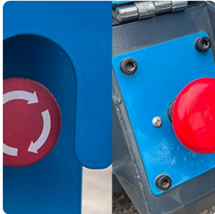
Sensitive, proportional travel and boom control, for precise positioning with one hand.



Tracked articulated boom lift

Safety and Running Gear

Built to stop, and built to keep going



Emergency Stop Buttons

@Emergency stop is fitted at both the platform and the ground controls, and cuts power immediately.@

Thickened Tracks

High-friction rubber tracks with a long service life, for soft, wet and uneven ground.



Tracked articulated boom lift

控制与操作部件 / Controls

动力与安全部件 / Power and safety

图 4-1 操控与动力部件实拍 / Fig. 4-1 Controls and power components

4.2 行走操作 / Travel Operation

- 仅当平台处于最低位置且（如配支腿）支腿收起时方可行走；
Only travel with the platform fully lowered and the outriggers (if fitted) retracted.
- 右摇杆前推前进/后推后退，左推左转/右推右转，中间停止；
Right joystick travels and steers, centre to stop.
- 先低速试行使设备移动，熟悉手感后再正常行驶；
Test at low speed to get used to the controls before travelling normally.
- 接近人员、障碍物或不平地面时，提前减速并鸣号示意；
Slow down and sound the horn near people, obstacles or uneven ground.
- 平台一旦离开最低位置，行走速度将被自动限制（部分机型直接锁定行走），此为本机安全联锁，属正常现象；
Once the platform leaves its lowest position the travel speed is automatically limited (some models lock travel entirely). This safety interlock is normal.
- 制动方式：松开摇杆即停止。
Braking: Release the joystick to stop.

4.3 升降操作 / Lifting Operation

- 大臂：作业前确认机身水平、支腿支撑到位，再操作两节大臂伸展；臂架伸展时严禁移动设备；
Boom: confirm the machine is level and supported before extending either boom section; never travel with the boom extended.
- 上升：遥控器控制两节伸缩大臂升降，无级调速；确认周围无障碍后人再上平台，到达所需高度即停；
Raising: Remote raises and lowers both telescopic booms, stepless speed control. Make sure the area is clear before stepping on, and stop at the height you need.
- 下降：确认平台下方与周围无人员、无障碍物后，再操作下降；松开即停；
Lowering: check that nobody and nothing is under or around the platform before lowering; release to stop.
- 上升 / 下降过程中如发现抖动、异响或倾斜，立即停止操作并按下急停；
If you notice juddering, noise or tilt while raising or lowering, stop immediately and press the e-stop.

4.4 操控方式原文说明 / Manufacturer Control Instructions

首先需打开下方及上方的急停开关，持续拧动钥匙便可开机，进入工作平台后，右侧摇杆为前进后退左转右转（前推前进、后推后退，左前推左转、右前推右转），左侧摇杆为曲臂上行下行、左右旋转（前推为第一节曲臂上行，相反为下行，摇杆上方按钮前侧按钮为第二节曲臂上行，相反为下行，左推为左移，右推为右移）。无线遥控打开后，按动按钮便可行走，转向，上升下降（无线遥控只需开启第二节曲臂等操作）。

First open both the lower and upper emergency stops, then hold the key turned to power up. Once in the work basket, the right joystick controls forward, reverse, left and right (push forward to go forward, pull back to reverse, push left-forward to turn left, right-forward to turn right). The left joystick raises and lowers the boom and rotates it left and right (push forward to raise the first boom section, pull back to lower it; the front button above the joystick raises the second section, the rear one lowers it; push left to slew left, right to slew right). Once the wireless remote is switched on, its buttons drive, steer and lift the machine, including the second boom section.

5 标准操作流程 / Standard Operating Procedure

5.1 作业前准备 / Before You Start

- 评估作业场地：地面坚实平整、上方无遮挡、四周留出安全距离，并设置警示隔离；
Assess the site: firm level ground, clear overhead, safe clearance all round and warning barriers set up.
- 完成第 2.2 节“操作前日检清单”全部项目；
Complete every item in the daily pre-start checklist in section 2.2.
- 穿戴安全帽、防滑鞋，系好安全带（作业高度超过 2 m 时必须使用）；
Wear a hard hat and non-slip footwear and put on a safety harness (mandatory above 2 m).
- 确认电量充足、液压油位正常、轮胎或履带状态良好；
Confirm the battery is charged, the hydraulic oil level is correct and the wheels or tracks are sound.
- （遥控机型）确认遥控器电量充足并与主机对码正常；
(Remote-control models) Confirm the remote is charged and correctly paired with the machine.

5.2 作业步骤 / Operating Steps

步骤 Step	操作内容 Action	要点提示 Watch out for
① 启动 ① Start	打开急停、拧动钥匙或遥控开机 Release the e-stop, turn the key or power up the remote	电量表读数正常 Normal battery reading

步骤 Step	操作内容 Action	要点提示 Watch out for
② 行走就位 ② Travel to position	平台在最低位，行驶至作业点 Travel to the work position with the platform fully lowered	低速行驶、注意避让 Low speed, watch for people
③ 升起平台 ③ Raise the platform	人员上平台、关好平台门，升降至需要高度 Step on, close the gate and raise to the required height	上升平稳无异响 Smooth, no abnormal noise
④ 高空作业 ④ Work at height	系挂安全带后进行作业 Carry out the work with the harness attached	载荷均匀，勿倚靠护栏 Even load, do not lean on the rail
⑤ 下降收工 ⑤ Lower and finish	确认下方无人，下降至最低位，离开平台 Check below is clear, lower fully and step off	观察下降平稳 Watch for a smooth descent
⑥ 收拢撤离 ⑥ Pack up	关闭电源并拔下钥匙，移至存放处充电 Switch off, remove the key and move to storage for charging	设备断电存放 Store with the power off

作业后提示 / After the shift

作业完成后应尽早为电池充电，避免电池亏电存放影响寿命。

Recharge the battery soon after each shift; leaving it flat shortens its life.

6 安全保护装置 / Safety Devices

保护装置 Device	作用 Purpose	日常自查 Daily check
急停按钮 Emergency stop	紧急情况下切断整机动力 Cuts all power in an emergency	按下即停机、旋出复位 Stops when pressed, resets when turned out
上限位 / 下限位开关 Upper and lower limit switches	限制平台升降极限位置 Limits the platform travel range	到极限自动停机 Stops automatically at the limit
升高行走锁定 Raised-travel interlock	平台离开最低位后自动限制行驶速度 Limits travel speed once the platform leaves its lowest position	升 10 cm 试行走应明显减速或锁定 Travel should slow or lock once raised 10 cm
倾斜报警传感器 Tilt sensor	车身倾斜超限时报警提示 Warns when the machine tilts beyond its limit	调平后报警消除 Alarm clears once levelled
超载保护 Overload protection	载荷超限时报警并禁止上升 Alarms and blocks lifting when overloaded	定期校验 Verify periodically
液压锁 (平衡阀) Hydraulic lock (balance valve)	防油管破裂时平台急速坠落 Prevents the platform from dropping if a hose bursts	静置无下滑 No drift when left standing
溢流阀 Relief valve	限制液压系统最高压力 Caps maximum system pressure	出厂已调定 Set at the factory
警示灯 (如配) Warning beacon (if fitted)	作业时提醒周围人员 Alerts people nearby during work	通电即亮 Lights when powered

重要 / IMPORTANT

任何安全保护装置失效时，应立即停用设备并报修，禁止带病作业。

If any safety device fails, take the machine out of service immediately and arrange a repair. Never work with a known fault.

7 电池使用与充电 / Battery and Charging

7.1 电池参数 / Battery Data

项目 Item	参数 Specification
电池类型 Battery type	阀控式密封铅酸蓄电池（免维护型） VRLA sealed lead-acid
电池规格 Battery specification	48V 203Ah（8 块电池） 48V 203Ah（8 块电池）
充电器 Charger	配套智能充电器 Matching smart charger
充满时间 Charge time	约 6 ~ 8 小时（视容量而定） About 6 to 8 hours, depending on capacity
充电电源 Supply	220V 交流电源 220 V AC mains

7.2 充电方法 / How to Charge

1. 将设备停放在通风良好、无明火、无易燃物的室内或遮雨棚下；
Park the machine indoors or under a shelter, well ventilated and away from open flames or combustibles.
2. 关闭电源开关，打开电池仓盖；
Switch the power off and open the battery compartment.
3. 先将充电器输出插头连接设备充电口，再接入 220V 交流电源；
Connect the charger output to the machine first, then plug the charger into the 220 V mains.
4. 充电指示灯为红色表示充电中，转为绿色表示已充满；
A red indicator means charging; green means fully charged.
5. 充满后先拔交流侧插头，再拔设备侧插头，盖好电池仓盖。
Once full, unplug the mains side first, then the machine side, and close the compartment.

7.3 电池使用注意事项 / Battery Care

- 日常使用后请及时充电，避免长时间亏电存放；
Recharge promptly after use; do not leave the battery flat.
- 长期停用期间每 30 天补充充电一次；
Top up the charge every 30 days during long periods of storage.
- 保持电池表面清洁干燥，接线端子无氧化腐蚀；
Keep the battery clean and dry with clean, corrosion-free terminals.
- 当充满电后作业时间明显缩短（不足新电池 60%）或电池使用超过 2~3 年时，应更换电池组；
Replace the battery when run time falls below 60 percent of new, or after 2 to 3 years of service.
- 废旧电池应交由有资质的回收机构处理，严禁随意丢弃。
Have spent batteries recycled by a licensed facility; never dispose of them in general waste.

- 禁止在平台升起状态下充电；充电时保持通风，禁止吸烟或靠近明火。
Never charge with the platform raised; keep the area ventilated and away from flames or smoking.

8 常见故障与排除 / Troubleshooting

故障现象 Symptom	可能原因 Possible cause	排除方法 Remedy
平台无法上升 Platform will not rise	急停未复位 / 电量不足 / 保险丝熔断 / 液压油不足 E-stop not reset / low battery / blown fuse / low oil	复位急停、充电、更换保险丝、补油 Reset the e-stop, charge, replace the fuse, top up the oil
上升缓慢无力 Slow or weak lifting	液压油不足或污染 / 泵磨损 / 油缸内泄 Low or contaminated oil / worn pump / internal cylinder leak	补油或换油、检修泵、更换密封 Top up or change the oil, service the pump, renew the seals
平台下降过快或过慢 Platform lowers too fast or too slowly	节流阀失调 / 回油不畅 Throttle valve misadjusted / restricted return line	调整节流阀、清理油路 Adjust the throttle valve, clean the oil circuit
平台停用后自行下滑 Platform drifts down when idle	液压锁失效 / 油缸内泄 / 换向阀内泄 Failed hydraulic lock / internal cylinder or valve leak	更换液压锁、更换油缸密封、检修阀组 Replace the hydraulic lock, renew cylinder seals, service the valve block
升降时抖动异响 Juddering or noise when lifting	液压系统进入空气 / 铰接点缺油 Air in the hydraulic system / dry pivot points	系统排气、加注润滑脂 Bleed the system, grease the pivots
无法行走 Machine will not travel	电池电量不足 / 急停触发 / 行走电机或遥控器故障 / 未开机 Low battery / e-stop tripped / travel motor or remote fault / not powered up	充电、复位急停、检修电机、重新开机对码 Charge, reset the e-stop, service the motor, re-pair the remote
遥控器无反应 Remote does not respond	遥控器电量不足 / 未对码 / 超出有效距离 Remote battery flat / not paired / out of range	更换遥控器电池、重新对码、缩短操作距离 Replace the remote battery, re-pair it, shorten the operating distance
整机不通电 No power at all	电源未开 / 电池接线松脱 / 主保险断 Power switch off / loose battery terminal / main fuse blown	检查开关、紧固端子、更换保险 Check the switch, tighten the terminals, replace the fuse
报警蜂鸣持续 Continuous alarm	超载 / 倾斜 / 限位开关异常 Overload / tilt / limit switch fault	减载、调平、检查限位开关 Reduce the load, level the machine, check the limit switch

⚠ 注意 / CAUTION

涉及液压、电气系统的检修须由专业维修人员执行；检修前务必切断电源、释放液压压力，并参考配套《维护与零件手册》。

Hydraulic and electrical repairs must be carried out by a qualified technician. Isolate the power and release hydraulic pressure before any work, and refer to the accompanying Maintenance and Parts Manual.

9 维护保养与保修 / Maintenance and Warranty

9.1 维护保养要点 / Maintenance Schedule

周期 Interval	保养内容 Task
每日 Daily	清洁机身、检查油位 / 电量 / 轮胎履带、功能试运行 Clean the machine; check oil, charge and wheels or tracks; run a function test
每周 Weekly	检查紧固件、液压管路渗漏，铰接点加注润滑脂 Check fasteners and leaks; grease the pivot points
每月 Monthly	检查液压油质量、剪叉臂磨损、电池端子、控制器散热 Check oil condition, arm wear, battery terminals and controller cooling
每季 Quarterly	检查油缸密封、刹车装置，校验安全装置 Check cylinder seals and brakes; verify the safety devices
每年 / 1000 小时 Annually / 1,000 h	更换液压油及滤芯，全面检修电气与结构件（专业维修） Change the oil and filter; full service of electrical and structural parts (specialist)

完整维护规程、润滑图表与零件清单详见配套《维护与零件手册》。 / Full procedures, lubrication charts and parts lists are in the accompanying Maintenance and Parts Manual.

9.2 补充技术参数 / Additional Specifications

项目 Item	参数 Specification
液压系统压力 Hydraulic pressure	出厂调定，勿自行调整 Set at the factory, do not adjust
液压油型号 Hydraulic oil	L-HM46 抗磨液压油 L-HM46 anti-wear hydraulic oil
履带张紧度 Track tension	下垂量 10 ~ 15 mm 为正常 10 to 15 mm of sag is normal
回转机构润滑 Slew gear lubrication	每月加注润滑脂 Grease monthly

9.3 保修与售后 / Warranty and Service

项目 Item	内容 Details
保修期限 Warranty period	自购买之日起 12 个月（或累计 1000 工作小时，以先到为准） 12 months from purchase, or 1,000 operating hours, whichever comes first
保修范围 Coverage	正常使用条件下因材料或制造缺陷引起的故障，免费维修、更换零件 Free repair or parts replacement for faults from material or manufacturing defects in normal use
不予保修 Exclusions	未按本手册操作与保养造成的损坏、私自改装拆卸、使用非原厂配件、不可抗力及易损件正常磨损 Damage from not following this manual, unauthorised modification, non-genuine parts, force majeure and normal wear of consumables
报修方式 How to claim	请联系销售商或制造商售后服务，报修时请提供设备编号与故障现象 Contact your dealer or our after-sales service with the machine serial number and the fault details

9.4 设备信息 / Machine Record

产品型号 Model	QB-5.5 / LD	设备编号 Serial no.		购买日期 Purchase date	销售商盖章 Dealer	
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—— 本手册结束 · 请与本机《维护与零件手册》一并保存 —— End of manual. Keep with the Maintenance and Parts Manual.